

STATE OF ALASKA

DEPT. OF ENVIRONMENTAL CONSERVATION DIVISION OF WATER CRUISE SHIP PROGRAM

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July 28, 2008

Richard M. Pruitt
Royal Caribbean Cruises Ltd.
Director Environmental & Public Health Programs
1050 Caribbean Way
Miami, FL 33132-2096

Dear Mr. Pruitt:

Per Section 1.9 of the Large Commercial Passenger Vessel Wastewater Discharge Permit number 2007DB0002, a permittee may request, with supporting information, approval for a vessel to discharge treated wastewater at concentrations that exceed the long-term effluent limits established in Table 1 for ammonia, copper, nickel, and/or zinc. The vessel's discharge must then comply with the interim effluent limits for the parameter(s) of concern. (See GP Section 1.9.1.)

The permit requires the submittal of a Source Reduction Evaluation (SRE) within 60 days of request for interim limits. (See General Permit Section 1.9.3.) Royal Caribbean submitted one SRE for both its Royal Caribbean and Celebrity vessels that are approved to discharge under the interim effluent in Alaska. Royal Caribbean submitted the SRE in a timely fashion. Thank you.

The Alaska Department of Environmental Conservation (DEC) has reviewed your SRE however, and finds it incomplete. I have specified the additional information that is needed before DEC can approve this document. (Also, see the attached DEC April 18th SRE guidance letter.) In addition, I have listed the DEC expectations for the interim reports submitted under the SRE.

General Comments – Additional Information Needed in SRE

- The re-submitted SRE must indicate the series of steps and actions that the company will take in order to comply with the long-term effluent limits before 2010.

- Your plan does not include any deadlines for implementation actions that will be taken in 2009 to bring the identified Royal Caribbean and Celebrity vessels into compliance with achieving the long-term effluent limits for ammonia, copper, nickel and zinc. Therefore you need to either revise your SRE to include an implementation schedule for 2009 or DEC will expect that these vessels will meet long-term effluent limits by the beginning of the 2009 cruise ship season. The implementation schedule may not extend beyond the beginning of the 2010 cruise ship season. (See GP Section 1.9.5 and 1.9.7).
- The SRE includes an "Influent Source Reduction Evaluation" but needs to identify when actions will be taken based upon the findings. (See GP Sections 1.9.5 and 1.9.7.) We note that 18 AAC 70.910(c) and the General Permit contemplate that this schedule may be refined as additional information is discovered. (See GP Sections 1.9.5, 1.9.6 and 1.9.12.) Therefore, Royal Caribbean may revise and resubmit its SRE to DEC for approval in the future as necessary. However, the initial SRE that DEC approves must provide the implementation schedule to show how the company plans to meet long-term effluent limits. This is an enforceable condition of the permit. (See GP Section 1.9.13.)
- The vessel names and the interim limits that Royal Caribbean has applied for are located on the first page. Please include additional information such as vessel class, type of potable drinking water system, and advanced wastewater treatment system information for each vessel. The Department needs the information to determine how each vessel is similar or different to the others. Different potable drinking water systems and wastewater treatment processes may contribute to different sources of the parameters of concern and therefore may lead to different solutions.
- The SRE must include the requirement for the annual progress report due within two weeks of the end of the calendar year for both 2008 and 2009. (See GP Section 1.9.12.)

Influent Source Reduction Evaluation – Additional Information Needed in SRE

- Number 1 should include disinfectants such as chlorine and halogens.
- Number 2 mentions the identification of other sources such as shore-based drinking water supplies. This section of the SRE should describe the volumes of potable water that each vessel typically bunkers at particular ports and include any plans for intake sampling done for metals at the vessel intake. Compliance data collected by public water systems are not

representative of the quality of the drinking water bunkered by the vessel. Therefore, DEC recommends that at least two potable water intake sampling events be included in the evaluation.

- Number 2 mentions the investigation of whether corrosion or plumbing as a potential source of the pollutants of concern. The findings should specify whether there are materials in place that are prone to corrosion in the context of the environment in which they are used (e.g. copper piping used in combination with soft water). DEC recommends that the findings from this section include a summary of vessel maintenance that identifies corrosion, pipe replacements, and material choices used for certain parts of the vessel.

Treatment Technology Evaluation – Additional Information Needed in SRE

- Royal Caribbean indicates that the company will work with your advanced wastewater treatment system vendors during the next 24 months. However, there is only one interim report deadline listed (November 30, 2008). This section needs to be expanded to include more details on the steps and research that is planned, when Royal Caribbean expects to receive the findings, and when the findings will be reported to DEC. For example, the section could list the deadline for when the company will hire a contractor to investigate the available technology, the scope of the contractor's investigation, the deadline(s) for the contractor's reports, when the reports will be transmitted to DEC, etc.

DEC Expectations for Interim Reports Submitted under the SRE

- Each interim evaluation report (e.g. November 31, 2008, December 30, 2008, and January 31, 2008), as well as the annual progress report, should discuss the methodology used to obtain the information.
- The "Influent Source Reduction Evaluation and" "Treatment Technology Evaluation" interim reports and annual progress report should be vessel specific since there may be differences in the findings among the vessels.
- The "Influent Source Reduction Evaluation" plan should include all the sources that feed into the advanced wastewater treatment system such as potable water and technical water systems.
- The "Influent Source Reduction Evaluation" January 31, 2008 report should include all findings that affect the effluent quality. This may include options for operating the existing advanced wastewater treatment system such as the effect that mixing ratios of blackwater and graywater have on effluent

quality, any chemicals used in the treatment process, the oxygen ratio used in the process, etc.

- The “Influent Source Reduction Evaluation” should also identify whether there are any intermittent operations or systems that could contribute to the source of metals or ammonia.
- The “Treatment Technology Evaluation” interim report(s) should detail the efforts that are being made to research existing or emerging technologies and the findings. This research effort could be tailored to the specific vessel, the specific cruise line, or the industry as a whole. Such research should include at a minimum an examination of the space requirements, installation and maintenance costs, reliability, energy requirements, specific pollutant removal rates, benefits to the environment and any other pertinent information.
- The “Treatment Technology Evaluation” interim report(s) should include the findings of any work or research with the vendors of the advanced wastewater treatment system to optimize the current system as well as the potential for any add-on components to address the pollutants of concern.
- The annual progress report should summarize the success or failure of actions that were implemented to meet the long-term effluent limits. The progress report will be an update to DEC on all Source Reduction Evaluation activities. This report should include and summarize: all reports and applicable sample results, description of any actions taken to achieve compliance with the long-term effluent limits, the quantification of the level of reduction of the pollutants of concern, and whether or not the deadlines established in your SRE were met. If the deadlines were not met, the progress report needs to include an adequate explanation of why a deadline was not met. (See also 18 AAC 70.910(b).)

DEC must receive the updates to your SRE by August 19, 2008. If the updates are not received by that date, DEC may withdraw your vessels’ approval to discharge under the interim compliance limits for ammonia, copper, nickel and zinc.

Subsequent to DEC approval of the Royal Caribbean SRE, Royal Caribbean may revise and resubmit its SRE to DEC for review and approval in the future if changes are necessary based upon findings or if different ships will be visiting Alaska during the 2009 cruise ship season.

Sincerely,

A handwritten signature in black ink, appearing to read "Denise Koch", written in a cursive style.

Denise Koch
Cruise Ship Program Manager

Enclosures:

Large Commercial Passenger Vessel Wastewater Discharge General
Permit No. 2007DB002, Source Reduction Evaluation letter dated April
18, 2008

cc: Lynn Kent, Director Division of Water
Ruth Hamilton Heese, Attorney, Department of Law
Albert Faure, Engineer, Cruise Ship Program
Edward White, Environmental Program Specialist, Cruise Ship
Program